Patient Care Applications on Internet

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Introduction: Promise and Potential of National Networking

Knowledge Access in Clinical Workstation:

The Clinical Workstation (CWS) is an integrated computer-based workstation for recording and retrieving patient-based clinical information and accessing network-based clinical knowledge resources. Fundamental to the CWS strategy is a client-server architecture which makes use of multiple servers for different services. The demonstration will illustrate how an Oracle relational database at the Massachusetts General Hospital (MGH) is utilized as the server for the electronic medical record, while the National Library of Medicine (NLM) MEDLINE server in Bethesda and the Lab of Computer Science (LCS) DXplain server at MGH act as knowledge servers. By using a controlled clinical vocabulary, the CWS is able to use documentation entered by the clinician as the entry point to the knowledge resource servers. The NLM Metathesaurus is used to map the CWS clinical vocabulary (an extended version of COSTAR's vocabulary) to alternative source vocabularies (Mesh, DXplain) through a client-server API. While the knowledge servers are disparate in location and implementation, the clinician accesses the information transparently through a single interface.

Collaborative Infrastructure Tools to Develop Medical Information System Applications: the NLM/HPCC Collaboratory Project

Medical information systems to support the complex clinical problem-solving, patient-management, and continuing-education needs of health care professionals are necessarily complex. These systems must integrate a variety of services, including those providing clinical data and image access, education and decision support, and communication. Such services are currently available largely on disparate, often incompatible systems. A major challenge for medical informatics is how to decrease the redundant development of software components while simultaneously assuring compatibility among elements so as to facilitate integration both within institutions and among like-minded organizations.

Our Collaboratory Project is a joint effort involving medical informatics groups at Harvard, Columbia, and Stanford Universities, supported by the HPCC initiative of NLM. The goal is to develop a shared set of Internet tools and methods for building information systems from network-based component objects. Our system demonstration will show some of the shared tools that we are developing (for example, browsers for exploring and testing our network-based vocabulary server, and tools for shared access to clinical data and structured guidelines) plus a prototype clinical workstation application that is based on client-server access to such shared components.

Access to NLM databases through the Internet

The National Library of Medicine (NLM) is making increasing use of the Internet to broaden the distribution of its existing databases; to build new multimedia services that exploit the Mosaic client software and World Wide Web; and to make a range of system development tools, including the UMLS Knowledge Sources, more accessible and useful to the informatics community. In a demonstration that includes access to clinically interesting information services available on the Internet, NLM staff will illustrate how the UMLS Knowledge Sources can be employed to assist users in identifying and searching information sources relevant to particular health care or research questions.